

Competitive Relationships Among Potato Production Areas in Northeastern America

Hsiang-tai Cheng

In the northeastern American region the main potato growing areas include Maine, Prince Edward Island (P.E.I.), New Brunswick, and Quebec, producing 73 million hundredweight of potatoes in 2003. The region's production is only about 15 percent of the U.S. total potato production, yet P.E.I., New Brunswick, and Quebec constitute the largest part of the Canadian potato industry and are the major source of U.S. potato imports.

U.S. potato imports are almost entirely from Canada, entering primarily the northeastern markets. Maine was the leading producer in the region before 1990 and since was surpassed by P.E.I. In a 1997 study of the competitive conditions between the U.S. and Canadian potato industries, the U.S. International Trade Commission (USITC) found that U.S. imports of fresh and frozen potato products from Canada affected the growers in the Northeast region, and especially the growers in Maine.

Economic studies considering Maine, P.E.I., New Brunswick, and Quebec as one production region are largely unavailable. This study provides some information about changes in potato production in the region and the competitive relationship among the region's four potato-producing areas.

Shifts in Potato Production in the Region

The number of acres planted in the region has been fairly stable, at about 270,000 acres per year. A noted change is the shift of potato production from Maine to P.E.I. Maine's potato acreage was about 64,000 acres in 2002, down from 108,000 acres in 1980, representing a decline of 2.4 percent per year. P.E.I.'s potato acreage, on the other hand, has grown significantly at 3.4 percent per year between 1980 and 1999, and has since maintained about 109,000 acres. According to Statistics Canada, preliminary 2003 potato acreage in P.E.I. was down 2.8% to 106,000 acres (Figure 1).

The author is associate professor in the Department of Resource Economics and Policy at the University of Maine.

This paper is Maine Agricultural and Forest Experiment Station Publication Number 2764.

New Brunswick and Quebec have experienced steady and moderate growth in potato acreage from 1980 to 2002. The potato acreage in New Brunswick is similar to that in Maine in 2001. Maine's potato acreage has increased 6.5% since 2001 to about 66 thousand acres, according to the latest USDA National Agricultural Statistics Service Annual Crop Production report (12 January 2004).

This intra-regional shift in potato production since the early 1990s may be attributed to the expansion and modernization of frozen french-fry facilities in P.E.I. at two plants owned by Cavendish Farms and one by McCain Foods. The processed-potato industry in P.E.I. is vertically coordinated through contractual relationships between potato growers and processors. In 2001, P.E.I. had about 130 contract growers with Cavendish Farms and about 80 with McCain (USDA-Foreign Agricultural Service 2001).

Because of confidentiality reasons, data on frozen french-fry production in P.E.I. are not available. According to a 1999 Nova Scotia Agricultural College report (Sutherland 1999), about half of the potato production in P.E.I. was used for processing.

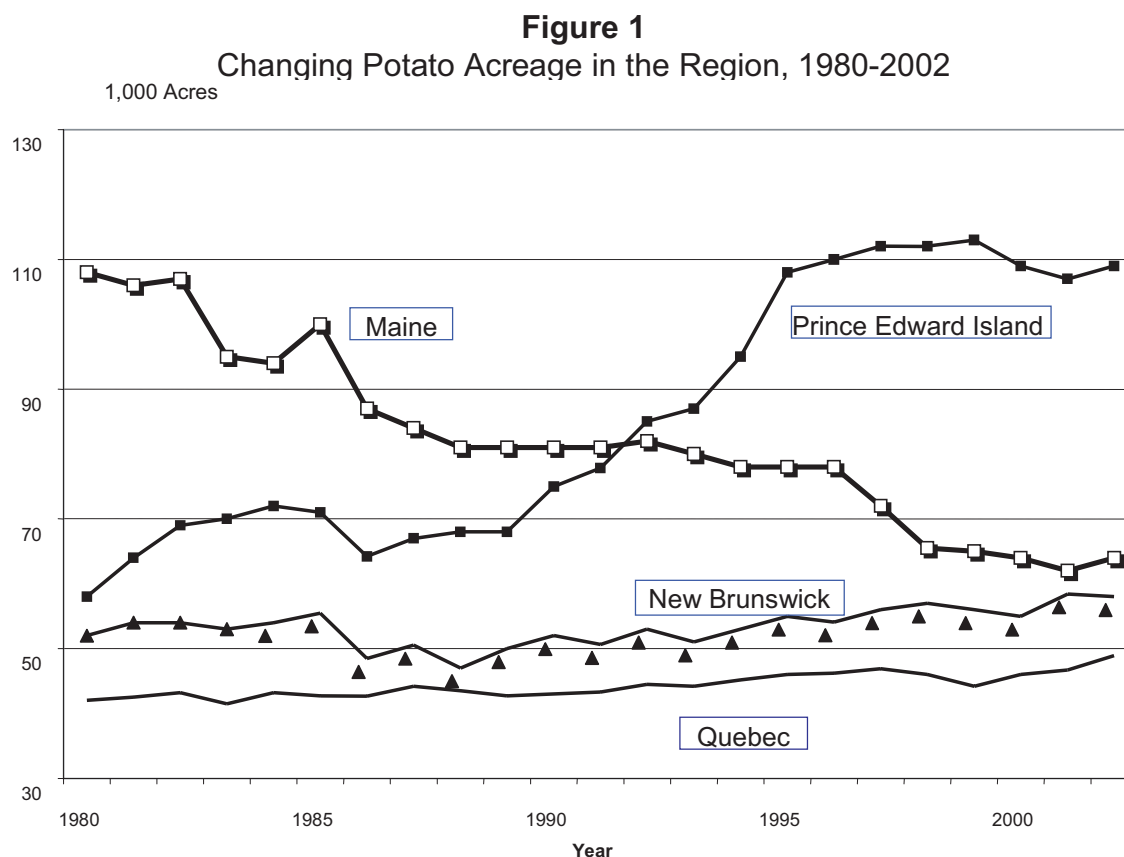
Various Canadian government assistance programs affect potato production, handling, and processing. Some of the government-assisted projects relevant to the potato production, storage, and procession in P.E.I. and New Brunswick (USITC 1997, 4-45 and 4-56) include:

King's County Development Corp, P.E.I. received a C\$4.3 grant in May 1994 to fund the building of a potato-storage facility for lease to Cavendish Farms to "benefit up 2,000 acres of potatoes."

Cavendish Farms in P.E.I. was granted a C\$75 million loan (9 years, 8.02 percent fixed interest rate) in 1996 for french-fry plant expansion.

O'Leary Potato Packers Ltd in P.E.I. received a C\$309,821 grant to assist potato-packing operations (FY 1996/96).

In March 1996, AKL Agricultural Development Inc, received C\$192,280 from ACOA and the provincial government of New Brunswick to construct



Source: USDA National Agricultural Statistics Service and Statistics Canada.

Figure 1. Changing Potato Acreage in the Region, 1980–2002.

a potato storage, packing, and shipping facility “to expand seed potato production by 360 acres and improve marketing.”

The USITC study also found that in the growing and processing of potatoes Canada did not have “apparent, large, cost-of-production advantages” over the United States. The relatively rapid expansion of planted potato acreage and processing facilities in P.E.I. during the 1990s was driven by strong demand for frozen french fries in the U.S., Canada’s leading export market, and weak Canadian dollars¹.

Production, Yield, and Price Trends

The production trends presented in Figure 2 correspond to changes in planted acreage in the four growing areas. Fluctuations from year to year were

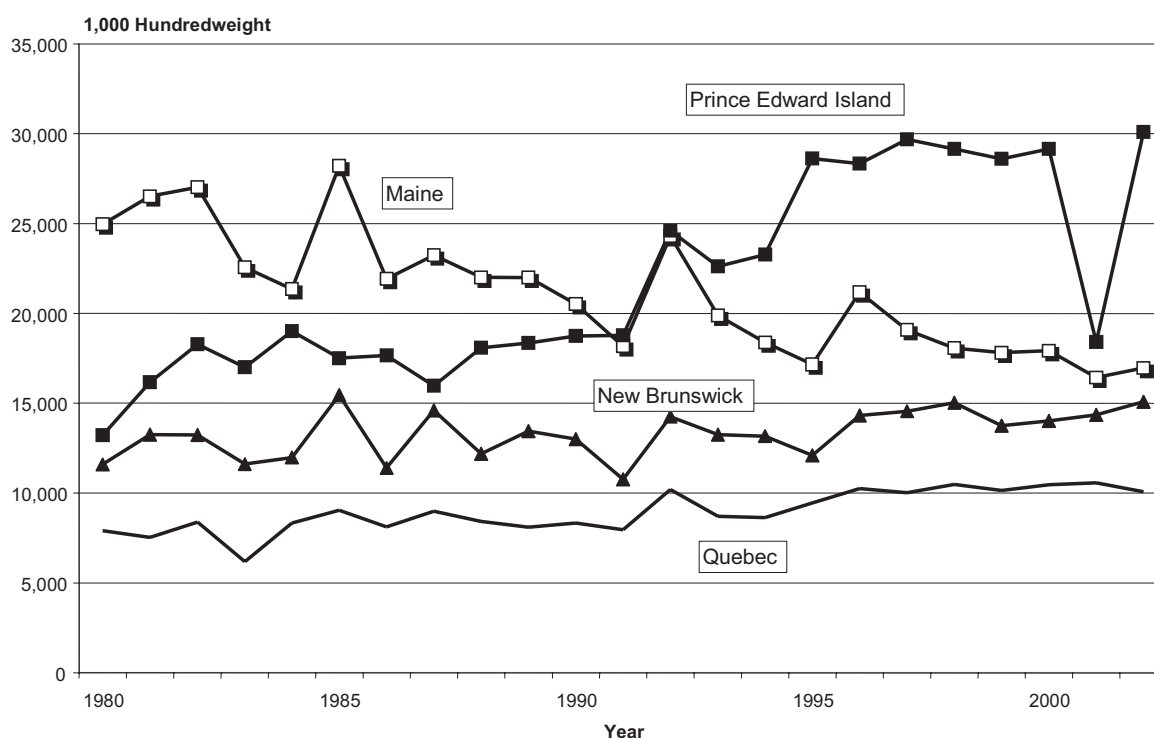
¹ The Canadian dollar fell from US\$0.8570 in 1990 to US\$0.6734 in 2000, a 27-percent drop in value during the period.

due primarily to weather conditions during the potato planting, growing, and harvesting seasons.

In terms of productivity on a per-acre basis, potato yields in Maine, P.E.I., and New Brunswick are fairly comparable and follow a similar gradual upward trend. Quebec’s yield in recent years was generally 10 to 15 percent below the region’s average. P.E.I.’s 2001 yield was down 36% from 2000 due to drought stress throughout the summer and fall (Figure 3).

Intra-Regional Interdependence

While there is a significant shift in potato production within the region, average farm prices in Maine, Quebec, New Brunswick, and P.E.I. move together overtime (Figure 4). This price movement reflects how closely the region is tied to its major market—the northeastern United States—and the competitive relationship among potato production



Source: USDA National Agricultural Statistics Service and Statistics Canada.

Figure 2. Potato Production, 1980–2002.

areas in the region. Maine growers in general receive the highest price, and the price differentials across the region correspond to the distance to the region's central market.

The year-to-year fluctuations of farm prices are the result of complex interactions between demand and supply in the markets for both table-stock potatoes and frozen processed potatoes. Determining the factors affecting changes in Maine potato prices requires a comprehensive study of market interactions. This study limited its scope to the Northeast production.

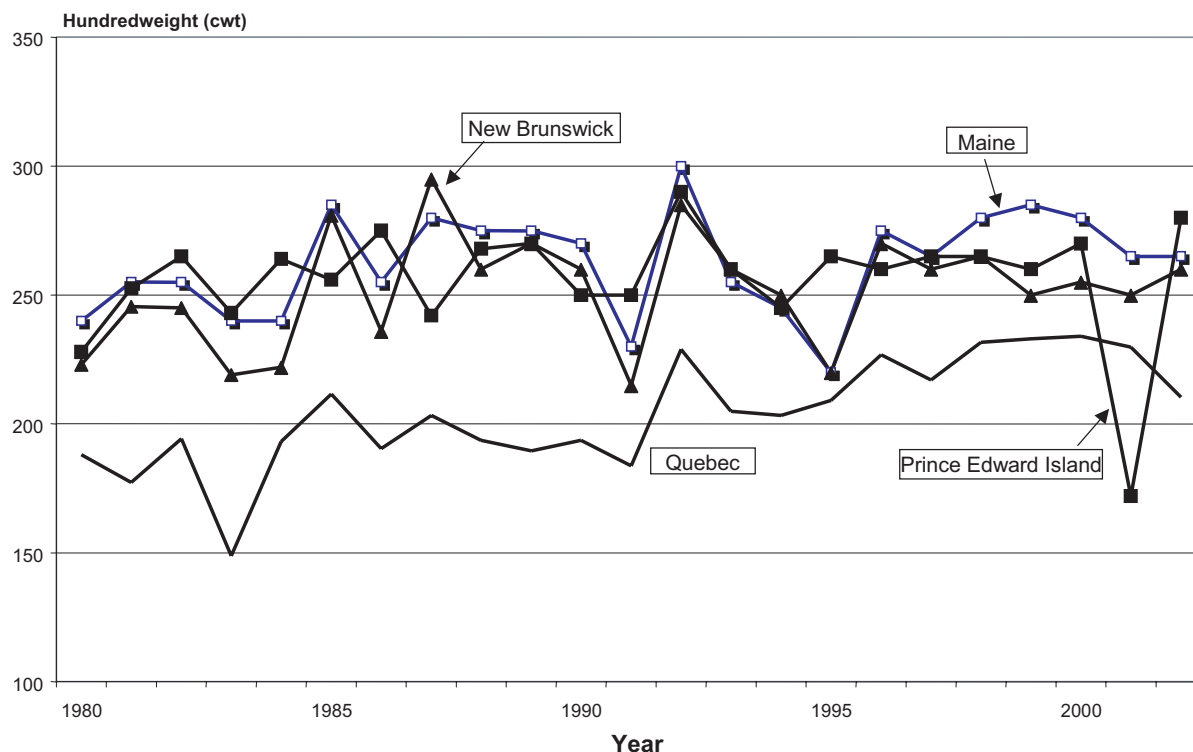
The 38-percent decrease in potato production in P.E.I. in 2001 due to dry weather provided an opportunity to assess the effect of such a drastic change in quantity supplied from the leading producer on farm prices in the region. It would be ideal, from an analytical point of view, if other factors affecting the market supply and demand stayed relatively the same during that period. Unfortunately, the U.S. fall potato production (including Maine) also decreased 15.8 percent that year, which made the issue more

complicated.

The last two columns in Table 1 present the percentage changes in potato production and prices in the region and in the U.S. between 2000 and 2001, and 2001 and 2002. The overall decrease in potato production in the region and in the U.S. fall potato production regions resulted in increases in farm prices ranging from a 24.4% increase in Maine to a high of 62% increase in P.E.I. Maine's price increase was lower than the U.S. average of 43%. On the other hand, the price-dampening effect of increased production in 2002 on the farm price was the smallest in Maine (-7.84%).

The average farm price in Maine fluctuated less both in magnitude and in proportion compared with other producers in the region in recent years. Further study is warranted before any meaningful implications can be drawn.

It was apparent however that the decrease in Maine potato acreage between 1993 and 1998 coincided with the increase in P.E.I.'s potato acreage. Increased investment in frozen potato-processing



Source: USDA National Agricultural Statistics Service and Statistics Canada.

Figure 3. Potato Yield Per Acre.

capacity driven by strong demand for frozen processed-potato products in the U.S. and other export markets was the determining factor.

Summary

This study examined the price and production relationships among major potato-production areas in the Northeastern region, which includes Maine and Canadian provinces of Prince Edward Inland (P.E.I.), New Brunswick, and Quebec.

The region's overall potato acreage planted has remained relatively stable, about 270 thousand acres per year. The noted changes in potato production in the region are an increasing vertical coordination with potato processing and the shift in production from Maine to P.E.I. since 1994. Between 2001 and 2003, potato acreage planted was 64,000 acres in Maine and 107,300 acres in P.E.I.

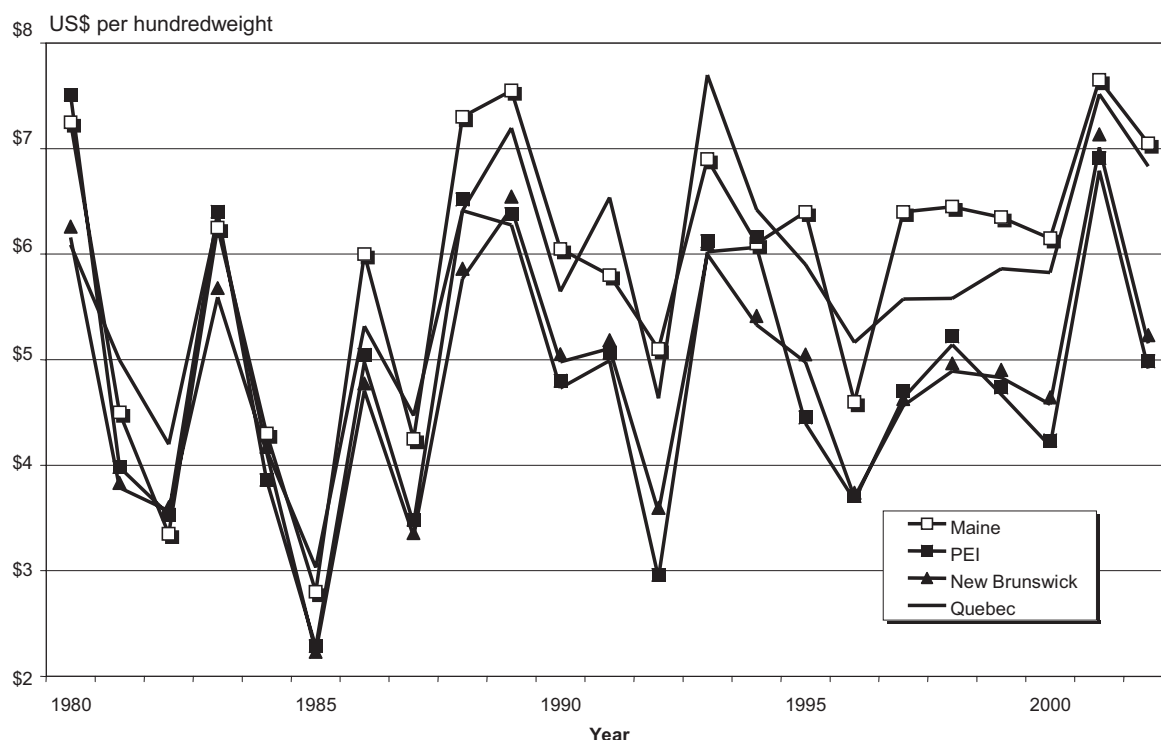
The rapid expansion of potato acreage in P.E.I. in the late 1980s and early 1990s was attributable to the expansion and upgrades of potato-process-

ing facilities operated by Canada's largest frozen french-fry producers, McCain Foods and Cavendish Farms. Increased potato production in P.E.I. coincided with the production decline in Maine.

The increased production of frozen potato products in Canada and the United States was mostly market-driven. A number of Canadian federal and provincial government-assistance programs had varying effects on potato production, handling, and processing in P.E.I.

Per-acre potato yields were comparable among Maine, P.E.I., and New Brunswick. Quebec's per-acre yield was generally 10 to 15 percent lower than the average yield of the other three areas in the region.

Farm prices in the region moved together, and price variations across the region were related to the distance to the northeastern U.S. market. The exact impact of changes in potato production in P.E.I. on farm prices in Maine was difficult to estimate without considering the market and production conditions at the national level.



Source: USDA National Agricultural Statistics Service and Statistics Canada.

Figure 4. Price Trends, 1980–2002 (in Current U.S. Dollars).

Table 1. Changes in Potato production and prices from 2000 to 2002.

	Production (1,000 cwt)			% Change	
	2000	2001	2002	2000/2001	2001/2002
Maine	17,920	16,430	16,960	-8.31%	3.23%
Prince Edward Island	29,160	18,404	30,100	-36.89%	63.55%
New Brunswick	14,025	14,350	15,080	2.32%	5.09%
Quebec	10,460	10,569	10,072	1.04%	-4.70%
U.S. fall potato	467,504	393,750	414,317	-15.78%	5.22%
	Farm Price (US\$/cwt)			% Change	
	2000	2001	2002	2000/2001	2001/2002
Maine	6.15	7.65	7.05	24.39%	-7.84%
Prince Edward Island	4.18	6.79	4.91	62.44%	-27.67%
New Brunswick	4.58	7.01	5.16	53.14%	-26.48%
Quebec	5.82	7.52	6.83	29.03%	-9.11%
U.S. fall potatoes	4.55	6.54	—	43.74%	—

Source: Maine data—Potato Statistics, USDA, Economic Research Service.

P.E.I., New Brunswick, and Quebec data—Statistics Canada.

U.S. fall potato production figure is obtained from USDA, Natl. Ag. Stat. Srv., Crop Production, 2003 Summary. Jan. 2004, in which the average fall potato farm price is not available.

References

- Sutherland, D. 1999. "Prince Edward Island Data Set." Island Sustainability, Livelihood and Equity Program, Island Food Systems. www.nsac.ns.ca/pas/courses/ifs/pei/DATASE~1.HTM. Nova Scotia Agricultural College. Truro, Nova Scotia, Canada. August.
- USDA National Agricultural Statistics Service. 2004. *Annual Crop Production Report*. Washington, D.C.
- USDA-Foreign Agricultural Service (FAS). 2001. "Canada Agricultural Situation-This Week in Canadian Agriculture, Issue 19." U.S. Embassy, Ottawa, No. CA1071. May 10.
- U.S. International Trade Commission. 1997. *Fresh and Processed Potatoes: Competitive Conditions Affecting the U.S. and Canadian Industries*. USITC Publication No. 332-378, Washington, D.C. July.